



FIRST AID

ADVANCED

Survival & Disaster



FIRST RESPONSE

In a disaster or survival scenario, timely access to professional medical care may not be available. First-aid skills beyond stabilizing a victim may be required.

Check for Safety Hazards

- Do not put yourself or others at risk while rescuing the victim.
- Check for safety hazards in the environment: collapsed buildings, downed electrical wires, chemical spills, flooding, etc.
- When possible, wear gloves and use a CPR mask or a disposable resuscitation barrier.
- Only move victim before initial assessment if required for safety. If the victim has suffered a possible spinal injury, immobilize the neck and head before moving. To move victim short distances, use a blanket drag, clothing drag, or fireman's carry.
- To move victim longer distances, improvise a stretcher (e.g., a flat board, two poles with the sleeves of two coats slipped over the poles, or two poles wrapped in a blanket or rope bed).
- It is impractical to carry a victim more than a few miles. Find shelter in a safe place and signal for help if needed.



Stabilize Vital Signs

Clear airway and start or maintain breathing.

A victim may not be breathing or may have difficulty breathing for a number of reasons, including airway obstruction, choking, shock, or injury to chest or lungs.

- If choking, perform Heimlich or modified Heimlich maneuver.
- If unconscious, check for airway obstruction.
- Use two fingers to remove any visible obstruction in the mouth.
- If the tongue is relaxed and blocking the airway, use the head-tilt or jaw-thrust technique to open the airway.
- Perform CPR if victim is not breathing.
- Once victim is stabilized, assess and treat injuries.



Endotracheal intubation or tracheotomy should be performed only by a qualified rescuer, and if the victim has a pulse and is judged to be dying due to an obstructed airway.

Check Heart Function & Blood Circulation

- Check for a pulse at the victim's wrist or neck.
- Place an index and middle finger on the thumb side of the wristbone, or place two fingers in the hollow under the neck to the side of the windpipe.
- Count beats for 10 seconds and multiply the number of beats by 6. The normal range is 60–100 heartbeats per minute.
- If the pulse is weak, check for causes such as bleeding, hypothermia, or a collapsed lung.
- If the victim has no pulse, perform CPR.

What the Pulse Can Tell You

Major artery pulses determine how well the heart is pumping.

- Major arteries can be checked at the neck (carotid artery), wrist (radial artery), or groin (femoral artery).

Differences in pulses in the lower extremities may indicate a circulation problem.

- Check at the back of the knee (popliteal artery), the front of the leg (posterior tibial artery), and the top of the foot (dorsalis pedis artery).
- Signs of lower-limb circulation problems include cold or bluish limbs or localized blanching of skin when pressed.

Using the Pressure Point Technique

Arm

- The brachial artery is located halfway between the elbow and the shoulder, on the inside of the arm.
- Cup your hand around the arm and apply pressure with four fingers.

Leg

- The femoral artery is located in the front of the thigh, below the middle crease in the groin. The thick tissue requires a strong pressure to feel a pulse.

Using a Major Artery Pulse to Estimate Blood Pressure

- Normal systolic blood pressure is 100–140 mm Hg.
- A pulse in the radial artery (at the wrist) suggests a systolic blood pressure of 80 mm Hg or higher.
- A pulse in the femoral artery (groin) suggests a systolic blood pressure of 70–80 mm Hg.
- A pulse detected only in the carotid artery (neck) suggests a systolic blood pressure of 60–70 mm Hg.

Using a Major Artery Pulse to Estimate Temperature

- The normal pulse of a person must be known, and the person must be still and calm, with no other stressor contributing to an increased heart rate.
- An increase of 10 beats per minute suggests a 1 degree rise in temperature.
- A decrease in 10 beats per minute suggests a 1 degree decrease in temperature.

BLEEDING

Significant blood loss can be fatal. Wear gloves when treating bleeding.

Treatment for minor bleeds

- Apply direct pressure with a clean cloth for 10 uninterrupted minutes.
- Elevate the affected area slightly above heart level to reduce blood pressure.
- Hemostatic dressings may help the blood to clot. Apply directly on the wound as per product instructions.

Treatment for major bleeds

- Have victim lie down. Apply direct pressure for 20 uninterrupted minutes.
- If bandage gets soaked, do not remove; apply a new one on top.
- Use artery pressure point to control bleeding if needed. See **What the Pulse Can Tell You**.

Treatment for extreme cases

- If an object is embedded, do not remove; apply pressure on either side of the object.
- If internal organs are exposed, cover with a wet, clean cloth and apply gentle pressure.
- If a limb was amputated, immediately apply a tourniquet.
- If severe blood loss is imminent and not controlled by direct pressure, apply a tourniquet.
- Treat for shock.

How to Apply a Tourniquet

This is an extreme care measure and will likely result in the loss of a limb.

- Apply the tourniquet two to three inches above the bleeding site, toward the heart; tighten until the bleeding is controlled.

- Commercial tourniquet products are available.

- To make an improvised tourniquet, wrap a wide bandage or strip of cloth (at least three inches wide) around the limb several times, then tie a square knot. Tie a stick in place over the knot. Twist the stick to tighten it until the bleeding stops. Secure the stick with a second knot.



- At the end of one hour, loosen the tourniquet slowly while maintaining direct pressure on the wound. If the bleeding is still heavy, retighten it. If it is manageable with direct pressure alone, leave the tourniquet in place, but do not tighten it again unless severe bleeding starts.

- If tourniquet is on for more than two hours, do not remove it without medical assistance and a plan for next-step care.

- A second tourniquet can be applied next to the first one if needed.

- Advanced care is required to remove the tourniquet and treat the wound.

SHOCK

Life-threatening emergency that can be caused by severe blood loss, heatstroke, hypothermia, allergic reaction, severe infection, severe burns, and other injuries.

Symptoms

- Cool, clammy, or pale skin
- Rapid, shallow breathing and weak, rapid pulse
- Nausea or vomiting
- Light-headedness, confusion, anxiety, loss of consciousness

Treatment

- Lie the victim down and elevate the legs, unless this will cause pain or further injury.
- Keep the victim still. Cover victim with a blanket and insulate from the ground with a pad or blanket.
- Do not give the victim any food or drink.
- Identify the cause of shock and treat it. Perform CPR if needed.

ANAPHYLAXIS

Life-threatening allergic reaction to an antigen.

Symptoms

- Skin rash or hives
- Swelling of lips, tongue, or throat
- If due to a sting or bite, localized swelling of the affected area
- Difficulty breathing
- Weak, rapid pulse
- Loss of consciousness

Treatment

- Immediate injection of epinephrine (e.g., an EpiPen).
- **NOTE:** Oral antihistamines do not work fast enough.
- **Advanced care:** Additional support for cardiopulmonary system.

Common allergens include nuts, shellfish, eggs, insect stings, and latex.

Check for Related Injuries Once Stabilized

The infrastructure for advanced health care may be disrupted. Additional care may be needed after a victim is stabilized. Record information for the advanced caregiver.

PHYSICAL EXAM: HEAD-TO-TOE CHECK

- Responsiveness (alertness, verbal responsiveness)

- Pain, discomfort, and abnormal sensations
- Pulse, respiration, and blood pressure
- Temperature
- Check skin color and temperature, signs of trauma (bruising, swelling)
- Muscle aches, stiffness, and bruising (may take several hours to develop)

MEDICAL HISTORY & PERSONAL/EVENT HISTORY

- Allergies, medications, and previous or current illnesses
- Recent food and drink intake
- Events leading to illness or accident

What Skin Can Tell You: Skin Color, Temperature & Other Signs of Illness

- **Hot skin:** Fever, heat stress, or heatstroke
- **Cold skin:** Shock, hypothermia, frostnip, or frostbite
- **Dry skin:** Heatstroke or heat rash
- **White, pale, or waxy skin:** Shock, heatstroke, frostbite, low blood pressure, or loss of circulation to an area
- **Bluish skin:** Cyanosis (lack of oxygen)
- **Yellowed skin:** Liver damage or anemia
- **Blackened or charred skin:** Gangrene, third-degree burn, or tissue death

WOUND MANAGEMENT

If advanced care is not immediately available, additional wound care may be required in the field. Follow basic first aid for wound care.

Cleaning Wounds

- If there is no risk of serious bleeding, clean the wound vigorously to dislodge any blood clots, debris, or loose or damaged tissues.
- Use an irrigating syringe or a clean plastic bag with a small hole.
- Scrub with sterile gauze or a surgical scrub brush if needed.
- If an animal bite, clean with benzalkonium chloride (helps kill the rabies virus).

Closing Wounds

- Close the wound if it is long or deep, if it gapes open loosely, or if it is located over a moving joint.
- Do not close the wound if a high risk of infection is present.
- Do not close the wound if it has been open for more than eight hours.
- If it is a large open wound, pack it with moist sterile gauze. Cover it with a sterile dressing and bandage loosely.
- A wound left open will heal from the inside out and leave a scar.
- Use the least-invasive closure method:
 - Use closure strips (butterfly bandages), tapes, glues (medical-grade adhesive, superglue), staples, or sutures.
 - Trim hair around the wound so the bandage will stick firmly to the skin.
 - For scalp wounds, use “hair stitches” (i.e., tie hair tightly together to close wound).
 - Use a sterile needle and thread for other stitches. Draw wound edges together and begin at the center. Tie off each stitch individually.
 - If drainage of wound is anticipated, leave a small opening to be closed later.
- Apply topical antibiotics.

Wound Dressings & Bandages

- Follow basic first aid for cleaning and closing wounds.
- Use a nonstick, sterile gauze to allow the wound to breathe.
- Change the dressing or bandage depending on the type and severity.
- Reapply topical antibiotics when redressing the wound.
- Protect it from movement injury (use splints or slings) as needed.
- Monitor for infection. If signs of infection are present, undo some of the closures or lance wound to drain.
- **Advanced care:** Oral or IV antibiotics and wound debridement.

Special Cases

- **Impaled objects:** Do not remove a foreign object (e.g., knife, stick, arrow, projectile) that may be acting as a plug unless advanced medical care is available. Pad and bandage around the object.
- **Head wound:** Be careful when applying pressure to stop bleeding from a head wound if bone fragments could be pushed into the brain.
- **Neck wound:** Apply direct pressure without choking; monitor for blood clots that could block the airway.
- **Abdominal wound:** In the case of deep wounds that could puncture internal organs, monitor for signs of complications. If internal organs protrude, cover with a moist clean cloth and seek advanced care.
- **Chest wound:** Deep wounds could cause a collapsed lung.

Internal Bleeding

Internal bleeding of organs can be hard to detect. Suspect severe injury.

Symptoms

- Bleeding from nose, mouth, ears, or rectum
- Extensive bruising
- Increase in swelling and tension in chest, abdomen, or other region
- Restlessness and signs of shock

Treatment

- Treat for shock.
- Advanced medical care is required.

QuickStudy**BONE FRACTURES****Simple Fractures: Extremities**

Without an X-ray, it is hard to tell a simple bone fracture from a sprain. Treat simple fractures the same as a sprain. Follow basic first-aid procedures: immobilize affected area, apply cold compresses, and give over-the-counter pain relievers or NSAIDs.

Complex Fracture: Extremities

The limb may appear at an odd angle or unnatural position, or the bone may protrude through the skin. Adjacent tissue (ligaments) may be damaged.

Symptoms

- Rapid swelling and bruising at break site
- Grating or grinding sound when moving limb
- Unable to use limb

Treatment

- If an open fracture, control bleeding and clean the wound once bleeding has stopped.
- Check for circulation problems, such as lack of pulse or cold, pale, or bluish skin below the fracture site.
- If the loss of a limb is imminent due to circulation problems, and if two experienced and trained rescuers are available, consider field realignment when advanced care is not available:
 - One person applies traction on limb above fracture.
 - One person gently pulls on limb below fracture in a direction that straightens the limb.
 - A splint should be applied while continuing to hold traction.
 - Discontinue realignment attempt if victim complains of pain increase.
 - If realignment is not possible, splint as is and pursue advanced medical care.

Neck & Spine Injury

Injury can result in paralysis.

Symptoms

- Neck at odd angle to body
- Spine or neck pain and tenderness
- Numbness, tingling, weakness, inability to move one or more extremities
- Shock, loss of bowel control, unconsciousness

Treatment

- Place cervical collar around the neck for stability.
- Immobilize the neck with padding (towels, blankets) taped into place.
- **Advanced care:** Realignment with gentle in-line traction or surgery.

Pelvis & Thigh Injury**Symptoms**

- Pain in pelvic area, lower back, groin, or hip
- Lack of bowel and bladder control

Treatment

- Treat for shock. Seek advanced care.
- Stabilize and immobilize the injury by tying the legs together or improvising a splint.
 - Gently wrap soft, firmly folded clothing or a blanket around the pelvis and/or thigh and tighten to immobilize the affected area.
 - Secure with tape or strips of cloth.
- **Advanced care:** Surgery or traction.

Jaw & Facial Fracture**Symptoms**

- Swelling, pain, or numbness at site of fracture

Treatment

- Apply a cold pack to reduce swelling; give over-the-counter pain relievers.
- Advanced care is required to repair the damage.

Collarbone (Clavicle) Fracture**Symptoms**

- Pain that increases with shoulder movement
- Grinding sound with shoulder movement
- Swelling, tenderness, or bulge near shoulder

Treatment

- Usually self-heals.
- Splint affected arm to the chest with a sling and a swathe or splint with safety pins.

Severe Head Injury

Injury can result in a skull fracture or brain injury.

Symptoms

- Indentation to the head, severe head bleeding
- Bleeding or bruising around the eyes or ears when there is no direct injury to that area
- Bleeding or fluid leakage from the ears and nose
- Severe headache
- Loss of balance, lack of coordination
- Loss of consciousness for more than a few seconds
- Altered mental status, confusion
- Apathy, drowsiness, weakness in extremities
- Slurred speech, convulsions, seizures
- One pupil larger than the other, vision problems

Treatment

- Keep the victim still and calm.
- Elevate the head and shoulders slightly above heart level.
- Control bleeding. Do not apply direct pressure to the wound if there is danger of bone fragments being pushed into the brain.
- If breathing stops or heart stops, perform CPR.
- If drainage occurs from ear or nose, do not block.
- Advanced care is required for imaging studies.

DISLOCATION

Occurs when a bone pops out of a joint socket. There may be tearing of the surrounding tissue (ligaments).

Simple Dislocations

Simple dislocations (e.g., fingers, nose, kneecap, simple shoulder dislocation) can be relocated in the field by trained professionals.

Symptoms

- Severe pain and swelling
- Deformed or immobile joint

Treatment

- Gently relocate as soon as possible before swelling or muscle spasms start.
- Use a cold pack to reduce swelling.
- Use gentle traction; pull bone in a straight line away from joint to allow it to slip back in place.
- After relocation, immobilize it with a splint.
- Check pulse and circulation before and after any relocation attempt.

Complex Dislocations

Complex relocations (e.g., shoulder, elbow, and hip) require more advanced first-aid techniques. If bone or tissue damage is suspected, advanced care is required.

SHOULDER

- Use gentle in-line traction and gravity to relocate the shoulder. It may take several minutes.

- Have victim bend with the arm down and the hand facing forward. Support the upper arm and chest, and pull gently downward on the arm.

- Or, have victim lie on a flat surface and hang the arm over an edge, with the hand facing forward and a weight attached to the arm.

- Check pulse and circulation before and after any relocation attempt.
- Advanced care is required for complex relocations.

ELBOW

- Check pulse in wrist and circulation in fingers.
- Put a splint in place.
- Advanced care is required for strong traction technique.

KNEECAP

- Can be popped back into place by pushing it back toward the inside of the knee with the thumbs while gently straightening the leg.

TOTAL KNEE

- A serious knee injury may involve rupture of a major artery in the knee; if this is not repaired quickly, it can require amputation of the affected leg.
- Advanced care is required.

HIP

- Advanced care with two people is required.

BURNS

Symptoms

- **First-degree burns:** Skin reddens and swells but does not blister; localized pain.
- **Second-degree burns:** Skin becomes moist, weeps clear or white fluid, and blisters; localized pain.
- **Third-degree burns:** Skin appears charred or white; tissue may be sunken, causing an indented appearance. Underlying tissue and bone damage is possible. Pain may be intense or absent.
- Facial burns or soot around the mouth may indicate inhalation of hot smoke or toxins.

Treatment for first-degree burn

- Remove jewelry and loosen restrictive clothing, as skin may swell.
- Stop the burning process by using cool running water for 10–15 minutes, or apply a cold, wet compress. Do not use ice, which can freeze tissue and cause further damage.
- Give over-the-counter pain relievers or NSAIDs.
- Apply soothing ointment (e.g., aloe vera or antibiotic ointment). Do not use butter or lard (it holds in heat and promotes infections).
- Keep the burn area clean to prevent infection.

Treatment for second-degree burn

- Treat as for a first-degree burn.
- If blisters form, do not break them unless they are large and likely to break on their own.
- Apply silver sulfadiazine (not near the eyes) or other antibiotic ointment.
- Cover with nonstick, dry, sterile gauze or a clean cloth.

Treatment for third- & fourth-degree burns

- Treat as for a second-degree burn.
- Remove jewelry and clothing if they are not stuck to the skin.
- Lightly cover the area with a clean sheet.
- Treat for shock and dehydration.
- If breathing has stopped, begin CPR.
 - Apply Celox Combat Gauze (gel-like protective layer) or a similar commercial product, if available.
- **Advanced care** for burns that cover a large area or are on the face, hands, feet, genitals, or over a joint: skin grafts and prescription antibiotics and pain relievers.

Contact Burns or Scalds

A contact burn is caused by contact with dry heat (e.g., touching an oven rack or fire poker). A scald is caused by contact with hot liquid or steam. Treat as a first-, second-, or third-degree burn, as appropriate.

Chemical Burns

These burns can be caused by household chemicals, gasoline, or industrial chemicals. Redness and pain may not develop for several hours. Chemical fumes can burn eyes, skin, and respiratory tract. Caustic agents can continue to eat away at skin even after being washed off.

Symptoms

- Severe pain, redness, and irritation at site of contact
- Shortness of breath (if chemicals are inhaled)

Treatment

- Remove chemical from skin as soon as possible. If powder, brush it off using gloves or other protective barriers.
- Remove contaminated clothing and jewelry.
- Flush affected area with cool water for 10–20 minutes (shower if large area was exposed; protect eyes from runoff contamination).
- Apply a nonstick, sterile bandage or dressing.
- Give an over-the-counter pain reliever.
- Treat for shock if needed.
 - Treat a chemical burn as a contact burn after the chemicals are thoroughly flushed away.
 - Check for other related injuries.

Electrical Burns

These burns can cause external and internal injuries. Electricity can “flash” over the skin or catch clothes on fire. Treat external burns based on their degree of severity. Monitor for internal damage.

QuickStudy

EXTREME TEMPERATURE INJURIES

Victims may be exposed to extreme temperatures, either because normal heating and cooling systems are not operational, or due to relocation to a new environment.

Heat Injuries

HEAT EXHAUSTION

A condition that occurs when the body overheats when exposed to high environmental temperatures. It can involve water depletion and salt depletion.

Symptoms

- Rapid heart and respiration rate, pale skin
- **Water depletion:** Dizziness, weakness, headache, confusion, dark urine, excessive thirst
- **Salt depletion:** Nausea or vomiting, muscle cramps

Treatment

- Move the victim to a cool, shaded environment.
- Have the victim lie down and elevate their legs slightly above heart level.
- Rehydrate with water or sports drinks (no alcohol or caffeine).
- Use any available method to cool core body temperature:
 - Apply cold packs to the neck, armpits, and groin for 5- to 10-minute intervals.
 - Splash skin with tepid water and fan.
 - Immerse in a cool bath or shower.
- Improvement should occur quickly.
- Monitor for progression to heatstroke.

HEATSTROKE

A true medical emergency that occurs when the body severely overheats and loses its ability to self-regulate temperature; may have a sudden onset or may progress from milder heat illness such as heat exhaustion, heat cramps, heat syncope, or heat-related dehydration.

Symptoms

- Rapid rise in body temperature to over 105°F.
- Rapid pulse (weak or strong)
- Rapid, shallow breathing
- Hot, dry skin or hot, moist skin if exercise-related
- Headache, dizziness, light-headedness
- Altered mental status, confusion, disorientation, lack of coordination
- Delirium, seizures, unconsciousness

Treatment

- Move victim to a cool, shaded environment.
- Remove any restrictive or unnecessary clothing.
- Use any available method to rapidly cool core body temperature:
 - Apply cold packs to the neck, armpits, and groin for 5- to 10-minute intervals.
 - Immerse in a cool bath or shower.
 - Spray water on the victim with a garden hose.
 - Cover with a wet sheet or towel, or soak clothes in water. Use fans to increase circulation and evaporation.
- Continue rapid cooling until core temperature is 102°F.
- If alert, rehydrate with water or sports drink (no alcohol or caffeine).
- Monitor for complications.

SUNBURN

Sun sensitivity differs among individuals. Some drugs, soaps, and lotions may increase sun sensitivity. Symptoms range from mild to severe and occur 2–6 hours after sun exposure. Peak effect appears at 12–24 hours.

Symptoms

- **Mild:** Skin redness, irritation, slight swelling and tightening of skin, no blistering
- **Moderate:** Pain and blistering
- **Severe:** Flu-like symptoms (chills, fever, headache, dizziness), intense pain, redness, blistering, dehydration (dark urine or reduced urination, dizziness, fatigue, dry mouth)

Treatment

- **Mild to moderate:** Cool skin using cool compresses or a cool bath; gently apply soothing gels or creams (aloe vera, menthol); give water or sports drinks to rehydrate; give over-the-counter NSAIDs or pain relievers; avoid the sun.
- **Severe:** Seek advanced care (e.g., skin grafts, prescription antibiotics and pain relievers) for burns that cover a large area or are on the face, hands, feet, genitals, or over a joint.

OTHER HEAT-RELATED CONDITIONS

- **Heat rash:** Keep rash area cool and dry; avoid direct sun and activities that cause sweating.
- **Heat cramps:** Treat like any muscle cramp; provide fluid and salt replacement.
- **Heat syncope (fainting):** Treat like fainting; avoid direct sun.

Prevention

Apply sunscreen regularly and wear protective clothing (e.g., long-sleeved shirts, hats, sunglasses). Stay hydrated. Avoid strenuous exercise when it is very hot.

Cold Injuries

FROSTNIP

The first stage of frostbite, frostnip causes no blistering or permanent damage. If left untreated and cold exposure continues, it can become frostbite.

Symptoms

- Skin reddens or pales
- Skin may sting, burn, or feel like pins and needles

Treatment

- Move to a warmer environment.
- Replace wet clothing with dry clothing.
- Do not rub the affected area.
- Gently rewarm the affected area using any available method:
 - Use body heat to rewarm (e.g., place hands in armpits or cover nose with dry, warm hands).
 - Cover with a warm blanket or coat.
 - Immerse affected area in warm (not hot) water.
 - Do not use direct heat such as hot water bottles or chemical heat packs, as they can turn off the shivering mechanism.
- The rewarming process may cause temporary skin redness, prickling, and stinging.

FROSTBITE

A freezing of the skin and underlying tissue that can lead to tissue death or even limb loss.

Symptoms

- Skin is white and waxy, and may feel hard; numbness of skin may not be noticed.
- Hands and/or feet may lack coordination or feel absent.
- Throbbing pain may begin days after rewarming and last for several weeks, followed by a tingling sensation that may last for several months.

Treatment

- Do not walk on frozen feet unless necessary for safety.
- Do not thaw affected area if there is a risk of refreezing.
- Move to a warmer environment.
- Replace wet clothing with dry clothing.
- Do not rub the affected area.
- When in a safe environment, rewarm (thaw) the affected area using any available method:
 - Immersion in warm (not hot) water for 30–90 minutes.
 - Rapid thawing with warmer water lessens tissue loss and is recommended but is more painful.
- Treat for shock as needed.
- After tissue is thawed:
 - Elevate the affected area.
 - Keep the victim dry, warm, and hydrated.
 - Give high-calorie food to raise core body temperature.
 - Protect skin with soft, nonstick, sterile bandages treated with aloe vera gel.
 - If fingers or toes are affected, place sterile cotton between digits and hold in place with a loose-fitting bandage.
 - Give over-the-counter pain relievers.
- Blisters may appear after rewarming and last 2–3 weeks.
 - Never drain bloody blisters. The covering protects underlying tissue from drying out.
 - If clear or white blisters prohibit walking to safety, drain blister and cover with antiseptic or bandages treated with aloe vera gel.
- Skin may blacken and form a hard shell (usually during the second week after rewarming). Apply topical antibiotic ointment.
- Do not amputate or debride wound; let dead tissue fall off naturally. This can take several months.

HYPOTHERMIA

A condition that occurs when the core body temperature drops. It can occur in non-cold environments and occurs faster if wet, immersed in water, or in windy conditions. Mild hypothermia can quickly progress to profound, life-threatening hypothermia.

Symptoms

- **Mild hypothermia:** Victim feels cold, shivers, and has slight lack of coordination.
- **Warning signs of profound hypothermia:** Victim stops shivering, heart rate slows, and breathing becomes shallow; victim becomes apathetic or forgetful, slurs speech, has poor judgment, or suffers loss of vision.
- **Severe reaction:** Loss of pain sensation, rigid muscles, dilated pupils, slow pulse may mimic death, coma.

Treatment of mild hypothermia

- Move the victim to a protected shelter immediately.
- Provide a warm shelter environment (turn up heat, build a fire).
- Replace wet clothes with dry clothes.
- Cover with an emergency blanket or sleeping bag, or devise other methods to “tent” the victim in warmth.
- Give victim high-calorie food to raise core body temperature.
- Let victim shiver; this raises core body temperature.
- Do not use direct heat such as hot water bottles or chemical heat packs, as they can turn off the shivering mechanism.
- Prevent reoccurrence (do not return to same environment if possible).

Treatment of profound hypothermia

- Follow treatment for mild hypothermia, but keep the victim still and calm. Rough treatment or stress can trigger heart rhythm irregularities.
- Place warm, dry compresses on the head, neck, armpits, chest wall, and groin to speed up core body temperature warming. If a warm (not hot) water bath is available, immerse only the hands and feet.
- Monitor breathing, and provide breathing rescue if needed.
- When no immediate signs of life are present, begin CPR.

OTHER WEATHER-RELATED INJURIES

SNOW BLINDNESS

A condition caused by exposure to bright sunlight on snow or ice.

Symptoms

- Bloodshot or teary eyes, gritty feeling in eyes
- Eye pain, sensitivity to light
- Swollen eyelids
- **Severe:** Permanent vision loss

Treatment

- Most cases self-heal.
- Apply a cool compress.
- Apply a soft eye patch to reduce the irritation from eyelid movement and light.
- Give over-the-counter pain relievers.

IMMERSION FOOT (TRENCH FOOT)

Prolonged exposure (several days or weeks) to nonfreezing water or wet, humid conditions can cause immersion foot.

Initial Symptoms

- Itching, tingling sensation followed by numbness
- Cold, swollen foot with waxy or mottled red or blue skin
- Difficulty walking
- Muscle cramps

Severe Symptoms

- Foot becomes hot and swollen; skin becomes red and blisters
- Possible infection and gangrene

Treatment

- Slowly warm feet by immersing them in warm (not hot) water.
- Rewarming is often painful.
- Do not rub the affected area.
- Avoid applying direct heat from a water bottle, electric heater, or campfire.
- Once rewarmed, keep feet dry and avoid re-exposure to moisture.
- Pain may last 24–36 hours.
- Treat blisters and gangrene following basic wound care guidelines (see **Wound Management**, p. 2).

Prevention

- Keep feet dry and change socks daily.
- Avoid tight or nonventilated (rubber) footwear.
- Massage and elevate feet periodically.

LIGHTNING

Lightning can cause injury through a direct hit, splash hit (when lightning bounces off another object), wave or step hit (when the current spreads through the ground or an object), or blunt trauma (explosive force).

Symptoms

- Heart and lungs may stop working; heart may restart but then stop because lungs are not working
- Skin burns (entry and exit wounds, feathered burn pattern)
- Trauma injury from related fall (bruise, fractures, dislocations, spinal injury)
- Temporary paralysis, seizures, amnesia, or loss of consciousness
- Internal tissue damage (including eye and ear damage, resulting in vision and hearing loss)

Treatment

- Assume possible spinal injury or other trauma injuries.
- If needed, maintain airway and assist with breathing for up to 30 minutes or more.
- Do not assume dilated or nonreactive eyes are a sign of death, as eyes may be damaged by lightning.
- Stabilize and splint fractures.
- Treat burns.
- Monitor for complications.

QuickStudy

ALTITUDE SICKNESS

Caused by relocation to a higher elevation.

Acute Mountain Sickness (AMS)

Symptoms occur at 8,200 feet and above.

Mild symptoms

- Headache, fatigue
- Nausea or loss of appetite

Treatment for mild AMS

- Stop ascent and rest for a day.
- Maintain adequate hydration and nutrition.
- Give over-the-counter pain relievers and antinausea medicine.

Moderate symptoms

- Headache not relieved by rest or medication
- More severe nausea and vomiting
- Fatigue and weakness while at rest
- Shortness of breath while at rest
- Loss of appetite and insomnia

Severe symptoms

- Difficulty walking
- Extreme shortness of breath while at rest
- Increased heart rate
- Persistent, dry cough
- Confusion or delirium

Treatment for moderate & severe symptoms

- Immediate descent is mandatory.
- Administer oxygen if available.
- Maintain proper hydration during descent.
- If vomiting occurs, give an antiemetic if available.

HIGH-ALTITUDE CEREBRAL EDEMA (HACE)

Symptoms occur at 12,000 feet and above.

Symptoms

- Progressive disorientation and neurological deterioration
- Loss of coordination (trouble walking, staggering gait)
- Severe headache due to brain swelling
- Changes in consciousness, impaired judgment, hallucinations
- **Severe:** Coma and death

Treatment

- Descend immediately.
- Apply high-flow oxygen if available.
- Maintain proper hydration during descent.
- Dexamethasone may help.

HIGH-ALTITUDE PULMONARY EDEMA (HAPE)

Symptoms are rare below 8,000 feet.

Mild symptoms

- Develop slowly over several days
- Decreased exercise performance, fatigue
- Shortness of breath during exertion (not while at rest), dry cough, localized chest congestion (not nasal)

Moderate to severe symptoms

- Begin two to four days after ascent
- Increased shortness of breath, particularly on exertion
- Blue discoloration (cyanosis) around the lip, mouth, or fingernail bed
- Dry, raspy cough progresses to gurgling in chest, pink sputum
- Increased respiratory and heart rate after 20 minutes of rest
- Extreme fatigue, marked weakness, confusion, loss of consciousness

Treatment

- A descent of 2,000–4,000 feet is usually sufficient.
- Limit exertion/exercise (carry if possible).
- Keep warm.
- Keep airway open; begin rescue breathing if needed.
- **Advanced care:** Portable hyperbaric chamber if available; prescription drugs.

HIGH-ALTITUDE RETINAL HEMORRHAGES

Hemorrhages of the retinal blood vessels may occur at over 14,000 feet. They self-resolve within several weeks at sea level. Retinal hemorrhages rarely cause symptoms, except when in macula (a blind spot may appear).

POISONING

PLANTS & FOOD

Some plants can cause severe skin irritation on contact, including poison ivy, poison oak, and poison sumac. Follow basic first-aid procedures. In a disaster or survival scenario, prevention of illness or injury is particularly important. Do not eat unfamiliar plants, plant products (e.g., berries, seeds, leaves, bark), mushrooms, or food products that may be contaminated.

CARBON MONOXIDE POISONING

Carbon monoxide is produced by fires, furnaces, and car exhaust. It has no odor, color, or taste. It bonds to red blood cells, reducing their availability to carry oxygen.

Symptoms

- Flu-like symptoms (headache, nausea, fatigue, confusion, vomiting, dizziness)
- Loss of consciousness, death

Treatment

- Move to fresh air.
- Avoid exertion.
- Provide oxygen therapy if available.

BITES & STINGS

Animal & Human Bites

Wild animal or unimmunized pet bites should be treated as possible rabies infections. Human bites can transmit hepatitis, tetanus, HIV, syphilis, and herpes.

Treatment

- Wear gloves when treating bite victims.
- Clean the wound vigorously with soap and water or flush with an irrigation syringe or a plastic bag with a small hole.
- Remove jewelry and tight clothing near the bite site, as swelling may occur.
- Apply antiseptic benzalkonium chloride (helps kill the rabies virus).
- Apply topical antibiotics.
- Do not close the wound if a risk of infection is present.
- Monitor for wound infection and transmission of disease.
- **Advanced care:** Oral antibiotics, tetanus shot, rabies vaccine.

Rabies

The rabies virus can be transmitted from animal bites, such as those from raccoons, skunks, foxes, or bats, and less commonly, from unimmunized domestic dogs. It affects the central nervous system, and the victim can take several days to weeks to develop specific symptoms.

Symptoms

- Flu-like symptoms (fever, headache, general weakness or discomfort) with itching and numbness at the bite site
- Insomnia, anxiety, confusion, partial paralysis, excitation, hallucinations, agitation, hypersalivation
- Difficulty swallowing and hydrophobia (fear of water), followed by death

Snakebites

In North America, there are only two types of venomous snakes: pit vipers (identified by their triangular head, quick strike, and fang

punctures) and coral snakes (identified by their red, black, and yellow stripes and chewing-type bite).

Pit viper bite symptoms

- Intense pain, swelling, tingling, and numbness at the bite site, followed by discoloration or bruising that gets progressively worse and forms clear or bloody blisters
- Numbing of lips or face, metallic or rubbery taste in mouth, bleeding of gums and nose, muscle twitches
- Sweating, chills, fever, weakness, fainting, nausea, vomiting, chest tightness
- Rapid breathing and heartbeat, headache, blurred vision, bulging eyes, confusion
- **Severe:** Bloody urine and stools, kidney and liver damage, collapse



Coral snake bite symptoms

Symptoms may not occur for several hours and may then progress rapidly

- Weakness and numbness of the affected limb, tender lymph nodes
- Muscle twitching, drowsiness, confusion or apprehension, slurred speech
- Increased salivation, difficulty swallowing, impaired breathing
- **Severe:** Seizures, paralysis, heart and lung failure, death (rare)



Treatment

- Quickly clean wound with soap and water, wiping away from the wound.
- Remove restrictive clothing and jewelry.
- Do not incise wound or attempt to suck out venom.
- Keep victim calm; an increased heart rate from stress will only make the venom spread faster.
- Immobilize the affected limb (splint or sling) at or above heart level to slow the spread of venom. Do not apply a tourniquet.
- Bleeding is generally not profuse; do not apply direct pressure to the wound.
- Treat for shock if needed. Even a nonvenomous bite can result in a shock-like reaction (weakness, sweating, nausea, fainting).
- Apply antibiotic ointment.

Scorpion Stings

Although all scorpion stings are painful, in the United States, only the small straw-yellow bark scorpion causes serious reactions. It hides in dark corners, under rocks, and in shoes or clothing.

Symptoms

- Immediate severe pain, redness, swelling, numbness at sting site
- Sweating, weakness, increased salivation
- Restlessness, irritability, muscle twitching
- Difficulty swallowing, shortness of breath, rapid breathing and heart rate
- **Severe:** Seizures, paralysis, collapse

Treatment

- Treat as a snakebite.

Bee, Wasp & Hornet Stings

Allergic reactions can lead to severe swelling at the sting site, headache, difficulty breathing, and anaphylactic shock. People who know they are allergic should carry injectable epinephrine (an EpiPen), which should be included in survival first-aid kits.

Treatment

- Remove stinger with fingernail; wash area with soap and water.
- Apply a cold pack.
- Apply soothing lotion (e.g., calamine) or baking soda and water paste.
- **Advanced care:** Injectable epinephrine (EpiPen).

Spider Bites

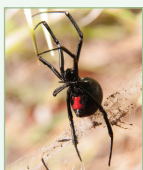
Most spiders do not bite humans, and most spider bites do not cause serious reactions. Only two potentially dangerous spiders live in the United States: the black widow and brown recluse spiders.

BLACK WIDOW SPIDER

Fat, black body and red hourglass mark on belly. Bite causes serious systemic reaction.

Black widow bite symptoms

- Pinprick pain, tingling, numbness at site



- Target-shaped sore; dull pain that spreads from bite site
- Sweating, swollen eyelids or sensitivity to light, headache, anxiety, restlessness
- **Severe:** Abdominal cramps, muscle pain and spasms, difficulty breathing, death (rare)

BROWN RECLUSE SPIDER

Brown violin-shaped body up to an inch long. Bite causes serious tissue damage.

Brown recluse bite symptoms

- Painless or mild sting followed by itching and burning
- Pain begins within the first few hours
- A blister forms, and a large sore (ulcer) develops that can take weeks to heal
- Flu-like symptoms begin within one to two days (weakness, nausea, vomiting, chills, fever, sweating)
- **Severe:** Shock, kidney failure, seizures, death



Treatment for black widow & brown recluse bites

- Wash area with soap and water.
- Apply a cold pack or compress.
- Treat the ruptured blister with topical antibiotics and cover with a nonstick, adhesive bandage (do not use steroid creams).
- Treat symptoms as they appear.
- **Advanced care:** Antivenom serum, antibiotics for secondary infection; prescription muscle relaxers may help muscle spasms from black widow toxins.

Fire Ant Bites & Stings

Found only in the Southern United States, fire ants are aggressive and sting multiple times in a circular pattern. Rare anaphylaxis reaction may occur.

Symptoms

- Painful bites and stings followed by an itchy rash and blisters

Treatment

- Wash area with soap and water.
- Apply a cold pack or compress.
- Apply antiseptic ointment.
- Give over-the-counter pain relievers and antihistamines.
- Apply soothing lotion such as calamine lotion or 1% hydrocortisone cream.
- Meat tenderizer is reported to denature the venom and relieve pain and swelling.
- **Advanced care:** Prescription steroids for severe itching; injectable epinephrine (EpiPen) for anaphylactic shock.

Other Insect Bites or Stings

- Black flies have toxic saliva that can cause nerve and intestinal disorders; wounds are slow to heal.
- Bristly caterpillars cause instant pain on contact, followed by redness and swelling that subsides within 24 hours. Remove bristles from the skin with adhesive tape.
- **Severe (rare):** Shock, headache, nausea, fever, and vomiting.
- Larger centipedes give painful bites that can cause severe swelling of lymph nodes at the joints, which may persist for weeks.
- Some beetles can excrete substances that can cause skin blisters and irritate the eyes.
- Mosquitoes can carry diseases such as malaria and the West Nile virus.

General treatment

- Wash the affected area with soap and water.
- Apply a cold pack, damp cloth, or cold (non-herbal) wet tea bag.
- Give over-the-counter antihistamines to reduce redness, pain, and swelling.
- Monitor for skin infection, allergic reaction, and signs of bite-related illness and transmission of infectious disease, as appropriate.

Tick Bites

The bites are painless, but ticks can transmit diseases such as Lyme disease, Rocky Mountain spotted fever, and tick paralysis. Ticks prefer shade and moist areas.

Safe tick removal

- Check the armpits, scalp, groin, lower abdomen, genitals, legs, and buttocks for ticks.
- Use tweezers to gently grasp tick's body and firmly pull it straight out; this may take longer than expected. Avoid twisting or squeezing the tick.
- Do not use a hot match, fingernail polish, or petroleum jelly.

- Wash the bite area with soap and water.
- Apply antiseptic ointment.
- If part of the tick is left in the skin, excise with a sterile instrument and treat the wound.

Symptoms of Lyme disease

- Local redness at the bite site and a large bull's-eye rash anywhere on the body
- Flu-like symptoms (chills, fever, fatigue, muscle and joint pain, nausea)
- Severe heart, neurologic, or arthritic reaction (develops in several weeks or months)
- **Advanced care:** Prescription antibiotics

TICK-RELATED PARALYSIS

This rare reaction to tick neurotoxins can cause temporary paralysis until tick is removed. Paralysis begins in the legs and advances to the arms, torso, and head.

Protection

- Wear long sleeves, tuck pants into socks, and wear closed-toed shoes. Light-colored clothing makes it easier to see ticks.
- Apply insect repellent approved for skin.
- Spray tents, sleeping bags, and clothing with 0.5% permethrin (do not apply directly to skin).

Marine & Aquatic Creature Stings

Stings can cause serious reactions, including shock, respiratory arrest, and drowning.

MAN-OF-WAR OR JELLYFISH: STINGING TENTACLES

Symptoms

- Sudden severe, stinging pain that may persist
- Skin rash

Treatment

- Peel tentacles from skin with a thin object such as a shell, or wear protective gloves.
- Rinse wound with saltwater; avoid hot water.
- Soak affected area with vinegar or alcohol.
- Apply 1% hydrocortisone cream.

STRINGRAYS: BARBED, VENOMOUS TAIL

Symptoms

- Laceration with profuse bleeding and pain, muscle cramps
- Diarrhea, difficulty breathing, nausea or vomiting, abdominal pain

Treatment

- Remove barbed tail pieces with a towel or glove.
- Rinse with warm to hot saltwater to deactivate the neurotoxins. Do not use freshwater.
- Control bleeding and treat wound.
- Dress wound, keeping it open if a risk of infection is present, and elevate the affected area.
- Apply antibiotics.
- Give over-the-counter pain relievers and antihistamines.
- Monitor for difficulty breathing and uncontrolled bleeding.

DENTAL EMERGENCIES

Pain from dental problems can be disabling. Serious infections or abscesses can become emergencies. A dental cavity, lost filling, or broken tooth can expose the tooth nerve to air and cause severe pain.

Treatment

- Pain can be reduced with clove oil; temporary fillings can easily be made by mixing clove oil and zinc oxide, or using sugarless gum or any kind of softened wax (e.g., from a candle).
- **Advanced care:** Dental extraction and invasive abscess-drainage techniques.

Abscess or Infection

Symptoms

- Fever; swelling of the gum, jaw, or palate; swollen lymph nodes under the jaw and in the neck
- Swelling of the cheek and side of the face (if infection has spread)

Treatment

- Treat mild infections with increased dental hygiene and saltwater rinses (half a teaspoon of salt in a cup of water).
- **Advanced care:** IV antibiotics, tooth extraction, or lancing of abscess for proper drainage.

ABDOMINAL & GASTROINTESTINAL PROBLEMS

Most of these problems can be managed with basic first aid. Sudden bad pain that does not go away may indicate appendicitis or gallstones that require advanced surgical care.

- **Appendicitis symptoms:** Pain in lower right area of the abdomen, nausea, vomiting, low fever, and constipation. Surgical removal is required. A ruptured appendix can cause the infection to spread.
- **Gallstone symptoms:** Severe lower back pain, associated with ingestion of certain foods. Surgical removal may be needed.

PREGNANCY & CHILDBIRTH

Important support for pregnancies and childbirth may not be available, including IV fluids, medications to stop bleeding, blood transfusions, and premature infant support.

- **Hyperemesis gravidarum:** Excessive vomiting during pregnancy; requires fluid replacement. Advanced care requires IV fluid replacement strategies.
- **Pregnancy-induced hypertension:** May occur in the last three months of pregnancy with dramatic swelling of tissue (edema). Bed rest may be the only treatment without advanced-care medications.
- **Miscarriages and childbirth:** Can result in internal bleeding due to torn tissue, or infection if not all the placenta or tissue is passed. Advanced care may be required.

CHEST INJURIES

Broken Ribs

These can be both painful and disabling. If a piece of the rib bone becomes separated, it can puncture vital organs (lung, spleen, or liver) and cause a life-threatening emergency.

Minor cracked ribs can cause pain or tenderness when breathing. A crackling or rattling sensation may be felt or heard. Minor broken ribs self-heal in 6–8 weeks and should not be firmly bound to avoid development of pneumonia.

Flail Chest (Broken-off Segment of Rib)

Symptoms

- Severe pain
- Difficulty breathing
- Affected chest area may bulge with exhale
- Punctured lung (if in upper rib cage)
- Punctured spleen or liver (if in lower rib cage)

Treatment

- A sitting position may be the most comfortable.
- Stabilize breathing motion by placing a rolled pad, cloth, or small pillow over the affected (bulging) area. Bind in place but do not bind entire chest.
- Splinting the arm to the injured site may help stabilize the flail segment and provide pain relief.
- Monitor breathing. If severely short of breath, provide gentle, assistive mouth-to-mouth rescue breathing.
- Monitor for fever, signs of pneumonia, and cyanosis (bluish skin).
- Monitor for signs of a punctured spleen or liver.
- Give over-the-counter pain relievers.
- Advanced care is required if complications occur.

Punctured Lung (Pleural Decompression, Collapsed)

A punctured lung will leak air into the chest cavity. A collapsed lung will not allow adequate oxygen circulation to the vital organs.

- **Symptoms:** Bluish discoloration (cyanosis), distended neck veins, signs of shock.
- **Advanced care:** Air trapped in the chest cavity must be released. Surgical incision is required to decompress lung and allow air to escape chest cavity.

Tension Pneumothorax

Caused by an open sucking chest wound, often from a bullet or other projectile, or a knife or other sharp penetrating object.

Advanced care

- Seal hole immediately with any airtight material (a gauze pad coated with antibiotic ointment or petroleum jelly, or plastic wrap).
- Tape three sides, leaving one side as a flap, creating a flutter-valve effect. When the victim inhales, the free edge seals against the skin, and when the victim exhales, the free edge allows air to escape.
- If object is stuck in the chest, do not remove. Place airtight material next to the skin around the object and stabilize with several layers of dressing.
- Check for other injuries.

QuickStudy

EAR, EYE & NOSE EMERGENCIES

Ear Emergencies

Most ear problems can be managed using basic first aid. Prevention of hearing loss includes good ear hygiene and use of ear protection around loud noises. Middle-ear infections in infants with a high fever or severe pain may require advanced care (antibiotics) to reduce the risk of meningitis.

Eye Emergencies

Several eye conditions can be life threatening (eye abscess, orbital cellulitis); others can result in loss of vision without expert medical care (retinal detachment, acute glaucoma). However, most eye injuries or conditions can be treated in the field with basic first-aid procedures.

- **Eye abscess:** A serious condition in which a small, round, white, or yellow spot on the surface of the cornea may be visible. Symptoms include pain, red eye, and decreased visual acuity. Advanced care with IV antibiotics to prevent the infection from spreading to the brain is required.
- **Orbital cellulitis:** A serious, deep infection around the eye, resulting in a swollen red eye, pain on eye motion, and decreased vision. Advanced care with antibiotics is required.
- **Optic neuritis:** An inflammation of the optic nerve caused by infection. Symptoms include yellow or green discharge from the eye. Advanced care includes antibiotics if the cause is bacterial.
- **Acute glaucoma:** High fluid pressure in the eye that can cause blindness. Symptoms include severe pain, blurred vision or halos of light, clouding of the cornea, and intense reddening of the white of the eye. Advanced care is required (prescription medications).
- **Retinal detachment:** A severe blow to the head can result in retinal detachment and blindness unless repaired surgically.
- **Orbital blowout fracture:** A break in the thin bone that supports the eye. Symptoms include pain with eye movement, double vision that disappears when one eye is covered, eyelid swelling that may worsen after nose blowing, swelling around the eye, and bruising. Surgical repair may be needed after swelling goes down.

Nose Emergencies

SEVERE NOSEBLEED

Nosebleeds can result in excessive blood loss and shock. Bleeds in the back of the nose can be serious and require advanced management with nasal packs and blood-constricting medications.

Treatment

- **Apply direct pressure:** Pinch nostrils closed for 10 minutes. If it is still bleeding, repeat for another 10 minutes. Sit upright to reduce blood pressure to the nose. Lean forward to reduce the flow of blood into the throat.
- **Use decongestant:** If bleeding does not stop and a nasal decongestant is available, blow out any blood clots and spray nasal decongestant into nose. Pinch both nostrils shut for 10 minutes and breathe through mouth. If nose is still bleeding, reapply direct pressure for another 10 minutes. When bleeding stops, do not blow nose and do not bend down for several hours.
- **Nasal packing:** If bleeding does not stop with direct pressure after 20 minutes or there is heavy blood loss, blow nose to remove clots, then pack nose with a cotton roll or gauze strips moistened with spray decongestant, antibiotic ointment, or saline, and pinch for 10 minutes. Then gently remove packing. If it is still bleeding, repeat packing without decongestant. After bleeding stops, leave packing in for two hours. Keep nasal packing moist with sterile saline solution. Nasal packing increases the risk of infection.
- **Advanced care:** If available, start prophylactic antibiotics during packing. Over-the-counter nasal-packing materials are available.

BROKEN NOSE

Treatment

- Pinch nose to stop bleeding.
- Apply a cold compress to reduce swelling.
- If nose is deformed to the side, relocate. This can be painful.
 - Grasp bridge firmly and push back over to the midline (it will crunch).
 - Apply a firm bandage to hold in place.
- If blood forms under skin over nasal septum, drain to avoid erosion of septum.

SURVIVAL KIT

Tools

- First-aid books and QuickStudy guides
- Tweezers, surgical forceps, stainless-steel bandage scissors, scalpel with replaceable blades or field knife
- Penlight, magnifying glass, thermometer, hypothermia thermometer for advanced care
- CPR breathing barriers, face masks (surgical and N95), non-latex gloves, goggles, stethoscope and blood pressure cuff for advanced care
- Safety pins, bandage clips, needle, needle holder, nylon or silk sutures and/or staple kit
- Plastic resealable bags, biohazard bags, bulb syringe, irrigation syringes, syringes and needles
- Cotton swabs, cotton balls, tongue depressors
- Eye wash, eye pads, eye patch
- Survival blanket, cold packs, heat packs, hot water bottle
- Superglue, medical glue, tincture of benzoin (helps wound-closure strips stick), styptic pencil, hemostatic agents (CeloX, QuickClot), surgical scrub brush

Bandage Materials

- Adhesive and nonadhesive bandages in assorted shapes and sizes
- Elastic roll bandages (ACE wrap) and gauze roll bandages

- Sterile dressing pads and trauma pads
- Molefoam and moleskin
- Triangular bandage, tourniquet, neck collar, moldable splints

Topical Treatments

- Alcohol wipes, antiseptic solutions (Betadine, Hibiclen), hydrogen peroxide, benzalkonium chloride wipes, witch hazel
- Aloe vera gel, antibiotic ointment, sunblock, lip balm, 1% hydrocortisone cream, 2.5% lidocaine cream, silver sulfadiazine cream
- Soap, insect repellent, lice shampoo

Medications

- Buffered aspirin, ibuprofen, acetaminophen, antacid, decongestant, loperamide, glucose paste or gel, stool softener, caffeine, diphenhydramine or loratadine, pseudoephedrine, bismuth subsalicylate
- Rehydration fluids
- **Prescriptions:** Epinephrine (EpiPen), antibiotics, Zofran (antinausea)

Dental Supplies

- Cotton (rolls and pellets), sterile gauze, hemostatic gauze
- Dental floss, dental wax, toothpicks
- Oil of cloves (eugenol) and zinc oxide powder
- Mouth mirror, dental scraper or pick

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